

SHORE REGIONAL HIGH SCHOOL DISTRICT

A Regional Collaborative of the Communities Served by the Monmouth Beach, Oceanport, Shore Regional, and West Long Branch School Districts

Aligned to Common Core State Standards/New Jersey Core Curriculum Content Standards as Applicable

Grade 4 Technology

Course Title: Grade 4 Technology

Content Area: Technology

Grade Level(s): 4

Course Description: Technology enables students to solve real world problems, enhance life, and extend human capability as they meet the challenges of a dynamic global society in the 21st century.

Curriculum Writer(s): John Vaccarelli

Date Created: July 2015

Date Approved by Board of Education: October of 2015

Pacing Guide

Unit 1 Title: Digital Citizenship and Cybersafety

Unit 2 Title: Selecting Digital Tools

Unit 3 Title: Using Digital Tools

Unit 4 Title: Problem Solving With Digital Tools

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Unit 1 Title: Digital Citizenship and Cybersafety
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<p>Unit Summary: In this introductory unit, students will focus on what it means to be a digital citizen in the 21st century. Students will discuss correct ways to utilize all the resources presented by technology and what responsibilities they have as digital citizens. Students will learn the importance of cybersafety and will learn about the dangers of cyberbullying. Students will learn techniques to properly navigate the Internet to find necessary resources. Students will also learn about how technology has developed over time and the impact it has had on society.</p>
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<p>Interdisciplinary Connections/Content Area Integrations Including Technology: Critical Thinking, Problem Solving, English Language Arts, Communications Skills, Health, Science, Social Studies, Mathematics</p>
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NJCCCS Number	NJCCCS Content
<p>8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to</p>	<p>D. Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.</p> <ul style="list-style-type: none"> ● 8.1.5.D.1 Understand the need for and use of copyrights. ● 8.1.5.D.2 Analyze the resource citations in online materials for proper use. Demonstrate personal responsibility for lifelong learning.

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<p>solve problems individually and collaborate and to create and communicate knowledge.</p>	<ul style="list-style-type: none"> ● 8.1.5.D.3 Demonstrate an understanding of the need to practice cybersafety, cyber security, and cyber ethics when using technologies and social media. Exhibit leadership for digital citizenship. ● 8.1.5.D.4 Understand digital citizenship and demonstrate an understanding of the personal consequences of inappropriate use of technology and social media. <p>E: Research and Information Fluency: Students apply digital tools to gather, evaluate, and use information.</p> <ul style="list-style-type: none"> ● Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.
<p>8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking, and the designed world</p>	<p>A. The Nature of Technology: Creativity and Innovation Technology systems impact every aspect of the world in which we live.</p> <ul style="list-style-type: none"> ● 8.2.5.A.4 Compare and contrast how technologies have changed over time due to human needs and economic, political, and/or cultural influences. <p>B. Technology and Society: Knowledge and understanding of human, cultural, and society values are fundamental when designing technology systems and products in the global society.</p> <ul style="list-style-type: none"> ● 8.2.2.B.4 Identify how the ways people live and work has changed because of technology. ● 8.2.5.B.6 Compare and discuss how technologies have influenced history in the past century.

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as they relate to the individual, global society, and the environment.	
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Summative Assessments:

May include but not limited to: Prezi, Google Documents, Google Slides, Google Spreadsheet, Google Forms



Formative Assessments:

May include but not limited to: Brain Pop Videos and Graded Quiz, Oral Questioning, Homework, Quiz, Class Discussion and Assignments, Google Documents, Google Slides, Google Spreadsheet, Google Forms, Citation Machine, Teacher Observation



Enduring Understandings:

- Technology use can have positive or negative impact on both users and those affected by their use.

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- Selection of technology should be based upon personal needs and/or the requirements of the task.
- Demonstrating digital citizenship includes many components (etiquette, communication, security, rights).



Essential Questions:

- What are individual's responsibilities for using technology?
- How can I be safe on the Internet?
- How do I choose which technological tools to use and when it is appropriate to use?
- How has technology changed over time, and how has it impacted our society?
- What are some acceptable Internet use guidelines for my technology class?
- Why is the evaluation and appropriate use of accurate information more important than ever in the technological age?



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Instructional Outcomes:

- Students will demonstrate an understanding of the need to practice cybersafety, cyber security, and cyber ethics when using technologies and social media and exhibit leadership for digital citizenship.
- Students will understand digital citizenship and demonstrate an understanding of the personal consequences of inappropriate use of technology and social media.
- Students will use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.
- Students will compare and contrast how technologies have changed over time due to human needs and economic, political, and/or cultural influences.
- Students will identify how the ways people live and work have changed because of technology.



Suggested Learning Activities:

- **Brain POP Internet Safety:** Show students the Internet safety video on BrainPOP Jr.
<https://www.brainpop.com/technology/communications/cyberbullying/preview.weml>

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Have students take the quiz individually, or complete the quiz as a class. Read a cyberbullying story/situation to the students. Halfway through, stop and ask each group of students to write the ending of the story. Once groups have shared their endings, read the real ending. As a class, come up with a list of steps explaining how to deal with cyberbullying and post it in the classroom.

- **Classroom Policy:** Have students look at three different acceptable Internet use policies for elementary schools. They can be from nearby schools or programs. Have them create a list of acceptable uses that show up on all of the lists. Then ask them to create a list of acceptable uses for the classroom. Make sure their acceptable use policy also lists the consequences of misusing the technology. Students can form groups and create Google Docs to collaborate on their ideas. This document will be finalized by teacher with student input and posted in the classroom along with the information on cyberbullying.
- **PSA on Cyber Safety:** After conducting research on Internet usage and cybersafety, students will create a short PSA (public service announcement) on these issues to be shown to other students in the school. The project can be modeled after the following lesson, although it will have to be altered for 4th grade <https://www.niot.org/nios/lesson/lesson-idea-%E2%80%9Cstudents-take-cyberbullying%E2%80%9D>. After students have created their script, they will perform in front of the green screen while the teacher films. Videos will be edited and then shown to other classes and younger students.
- **History of Technology Project:** Have students work in groups to create presentations showing how some form of technology has changed over time. Students will choose one aspect of technology (cell phones, Internet, social media, e-mail, etc.). Students will research the history and development of their aspect. Students will create a document with major highlights showing the development of their technology. Students will also describe how the technology impacted people around the world.

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- **Internet Research Tips:** Have students read the article Internet Research Tips. Then have a class discussion about how to find credible websites and signs of websites that are not credible. Split the students into groups and assign each group a different global issue. Have the groups work to locate credible websites and create a report that details how technology was or was not successful in addressing the global problem. An example can be done as a class to give students an idea of what to do.
<http://homeworktips.about.com/od/researchandreference/a/internet.htm>
- **Hoax Website Activity:** Using the following link <http://teachbytes.com/2012/11/01/test-website-evaluation-with-10-hilarious-hoax-sites/>, have students evaluate the hoax websites and come up with a checklist on how to evaluate a website for credibility.



Suggested Differentiation:

Tier 1 Learners: Work individually, allow student choice to experiment with various resources.

Tier 2 Learners: Work with a partner, chunk information into smaller parts, provide written notes and/or resources for the student to utilize, student choice from a limited amount of resources.

Tier 3 Learners: Video or written tutorials, work with a partner, chunk information into smaller parts, provide written notes and/or resources for the student to utilize, provide graphic organizers and a list of resources, allow extra time to complete assignments.



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Curriculum Development Resources:

<http://www.copyrightkids.org/>

<http://www.netsmartz.org/Parents>

<http://www.cybertreehouse.com/>

<http://old.digizen.org/cyberbullying/film.aspx>

<https://www.brainpop.com/spotlight/digitalcitizenship/>

http://www.digitalcitizenship.net/uploads/09-0489_AWAY_26_DIGKIDS_.pdf

<https://www.commonensemedia.org/educators/cyberbullying-toolkit>

<http://homeworktips.about.com/od/researchandreference/a/internet.htm>

<http://usm.maine.edu/library/checklist-evaluating-web-resources?ID=0>

<http://www.schrockguide.net/uploads/3/9/2/2/392267/5ws.pdf>

<http://networketiquette.net/netiquette/student-netiquette/>

http://www.hectorsworld.co.nz/island/main/episode_theatre_interior_01/COMPUTER_SECURITY/HW_NZ_COMPUTER_SECURITY_IE.html



Notes/Comments: Many of the student projects can be graded with rubrics. The following are links to online rubric creators:

<http://rubistar.4teachers.org/index.php>

<http://elearningindustry.com/the-5-best-free-rubric-making-tools-for-teachers>

<http://www.rcampus.com/index.cfm>

<http://www.edudemic.com/online-rubric-makers/>

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Unit 2 Title: Selecting Digital Tools

Unit Summary: This unit will build off the previous unit. Once students have a sense of Internet safety/etiquette, they can move on to using digital tools. In this unit, students will begin to select which digital tools to use for different situations. Students will familiarize themselves with some of the newest digital tools. Students will work on formatting, editing, and inserting tables in Microsoft Word and Google Drive. Students will also work with an online photo editing tool.

Interdisciplinary Connections/Content Area Integrations Including Technology: Critical Thinking, Problem Solving, English Language Arts, Communications Skills, Health, Science, Social Studies, Mathematics

NJCCCS Number	NJCCCS Content
8.1 Educational Technology: All students will use digital tools to access, manage,	A. Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems, and operations.

SHORE REGIONAL HIGH SCHOOL DISTRICT

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<p>evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.</p>	<ul style="list-style-type: none">● Understand and use technology systems. 8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.● Select and use applications effectively and productively. 8.1.5.A.2 Format a document using a word processing application to enhance text and include graphics, symbols, and/or pictures.● Select and use applications effectively and productively.8.1.5.A.3 Use a graphic organizer to organize information about a problem or issue.● Select and use applications effectively and productively.8.1.5.A.4 Graph data using a spreadsheet and analyze and produce a report that explains the data.● Select and use applications effectively and productively.8.1.5.A.5 Create and use a database to answer basic questions.
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Summative Assessments: May include but not limited to: Prezi, Google Documents, Google Slides, Google Spreadsheet, Google Forms



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Formative Assessments: May include but is not limited to: Teacher Observation, Oral Questioning, Class Discussion, Homework, Quizzes, Exit Tickets, Graphic Organizers, Independent and Cooperative Activities/Assignments/Projects, Tests, Google Classroom



Enduring Understandings:

- Selection of technology should be based upon personal needs and/or the requirements of the task.
- Digital tools provide opportunities for people to have new experiences, recognize problems, design solutions, and express their ideas.
- Information is spread worldwide within seconds due to technological advancements and has an immediate impact.
- Digital tools allow for communication and collaboration anytime/anyplace worldwide.



Essential Questions:

- How do I choose which digital tools to use and when it is appropriate to use them?

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- How can digital tools be used for creating original and innovative works, ideas, and solutions?
- Why is the evaluation and appropriate use of accurate information more important than ever in the technological age?
- What are some new digital tools for education?
- Why is the evaluation and appropriate use of accurate information more important than ever in the technological age?
- What are the benefits and limitations of using technology?



Instructional Outcomes:

- Students will format a document using a word processing application to enhance text and include graphics, symbols, and/or pictures.
- Students will select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.
- Students will be able to identify at least five new digital tools used in education.
- Students will use a graphic organizer to organize information about a problem or issue.

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- Students will be able to edit photos using an online digital tool.



Suggested Learning Activities:

- **Future Project:** Review the basics of word processing software with the students. Introduce some advanced features such as how to adjust margins, page orientation, and inserting tables, etc. Students will then create their Future Career Project. In this project, students will plan out what future career they are interested in. They will research information about the career and the salary. Students will also plan out a future home to go along with their career. In this project, students will create tables and charts. Students will also insert graphics and WordArt.
- **Family Tree Project:** Students will learn how to insert boxes, arrows, and shapes in Microsoft Word or Google Docs. They will create a family tree with names, descriptions, and photos (if possible) for their family members.
- **Photo Editor Project:** Students will learn how to edit/change/alter photos online in this project. Students will use the following web program for this project: <https://pixlr.com/editor/>. Students will be given a list of pictures to search for on Google and also directions on how the photos should be edited. When complete, students will put all the photos together in a presentation using a PowerPoint or Google Slides.
- **Using Digital Tools:** Have students work in groups. Each group should select one digital tool to use. Present the class with a problem and ask each group to solve the problem using the one tool they have chosen. Then have the groups present to the class whether or not they could

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solve the problem with their tool. Have a class discussion about how the different tools were effective and ineffective. As a class, create a Google Doc listing and explaining the top 10 new digital tools discovered. This list will then be shared with other teachers/classes in the building. Use the links below as a jumping off point for selecting which digital tool to use.

<http://ww2.kqed.org/mindshift/2013/07/08/13-free-web-tools-students-and-teachers-should-know-about/>

<http://www.edudemic.com/best-web-tools/>

<http://globaldigitalcitizen.org/321-free-tools-for-teachers-free-educational-technology>



Suggested Differentiation:

Tier 1 Learners: Work individually, allow student choice to experiment with various resources.

Tier 2 Learners: Work with a partner, chunk information into smaller parts, provide written notes and/or resources for the student to utilize, student choice from a limited amount of resources.

Tier 3 Learners: Video or written tutorials, work with a partner, chunk information into smaller parts, provide written notes and/or resources for the student to utilize, provide graphic organizers and a list of resources, allow extra time to complete assignments.



Curriculum Development Resources:

http://activities.macmillanmh.com/Techknowledge/data/_shell/_global/files/_swf/tk.php?level=03&unit=07&lesson=67

<http://www.pjnicholson.com/mjcomapp/index.htm>

https://docs.google.com/presentation/d/1PEa43-VkpMG6e_Wc0cXA6bmhL-NnJtXJzExdxGOOf_IU/present?slide=id.g1188dfed8_00

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<https://www.google.com/edu/>
<http://ww2.kqed.org/mindshift/2013/07/08/13-free-web-tools-students-and-teachers-should-know-about/>
<http://www.edudemic.com/best-web-tools/>
<http://globaldigitalcitizen.org/321-free-tools-for-teachers-free-educational-technology>



Notes/Comments: Many of the student projects can be graded with rubrics. The following are links to online rubric creators:

<http://rubistar.4teachers.org/index.php> <http://elearningindustry.com/the-5-best-free-rubric-making-tools-for-teachers>
<http://www.rcampus.com/index.cfm> <http://www.edudemic.com/online-rubric-makers/>

Unit 3 Title: Using Digital Tools

Unit Summary: In this unit, students will utilize presentation software such as Google Slides, Microsoft PowerPoint, or Prezi. Students will research a topic and present an issue to the class. Students will also conduct and publish a schoolwide survey with charts and graphs utilizing Microsoft Excel and Google Forms. Students will continue to refine their research skills using the guidelines learned in a previous unit.

SHORE REGIONAL HIGH SCHOOL DISTRICT

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Interdisciplinary Connections/Content Area Integrations Including Technology: Critical Thinking, Problem Solving, English Language Arts, Communications Skills, Health, Science, Social Studies, Mathematics

NJCCCS Number	NJCCCS Content
<p>8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.</p>	<p>A. Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems, and operations.</p> <ul style="list-style-type: none"> ● 8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems. ● 8.1.5.A.2 Format a document using a word processing application to enhance text and include graphics, symbols, and/or pictures. ● 8.1.5.A.3 Use a graphic organizer to organize information about a problem or issue. ● 8.1.5.A.4 Graph data using a spreadsheet and analyze and produce a report that explains the data. <p>B. Creativity and Innovation: Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.</p> <ul style="list-style-type: none"> ● 8.1.P.B.1 Create a story about a picture taken by the student on a digital camera or mobile device. ● 8.1.2.B.1 Illustrate and communicate original ideas and stories using multiple digital tools and resources.

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- 8.1.5.B.1 Collaborative to produce a digital story about a significant local event or issue based on first-person interviews.
- 8.1.8.B.1 Synthesize and publish information about a local or global issue or event (e.g., tele collaborative project, blog, school web).
- 8.1.12.B.2 Apply previous content knowledge by creating and piloting a digital learning game or tutorial.

F: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

- 8.1.5.F.1 Apply digital tools to collect, organize, and analyze data that support a scientific finding.

Summative Assessments: May include but not limited to: Prezi, Google Documents, Google Slides, Google Spreadsheet, Google Forms



Formative Assessments: May include but is not limited to: Teacher Observation, Oral Questioning, Class Discussion, Homework, Quizzes, Exit Tickets, Graphic Organizers, Independent and Cooperative Activities/Assignments/Projects, Tests

SHORE REGIONAL HIGH SCHOOL DISTRICT

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Enduring Understandings:

- Technology is constantly changing and requires continuous learning of new skills.
- Technology is a tool that can be used for collecting, organizing, creating, and presenting information.
- A tool is only as good as the operator utilizing the tool; knowing how to use the tool is paramount.
- Digital tools provide opportunities for people to have new experiences, recognize problems, design solutions, and express their ideas.
- Digital tools allow for communication and collaboration anytime/anyplace worldwide.



Essential Questions:

- How can digital tools be used for creating original and innovative works, ideas, and solutions?

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- Why is the evaluation and appropriate use of accurate information more important than ever in the technological age?
- In what ways can I present information using Microsoft Office and Google Docs?
- How can I best collect and present data?
- Why is the evaluation and appropriate use of accurate information more important than ever in the technological age?
- What are the benefits and limitations of using technology?



Instructional Outcomes:

- Students will research and publish information about a significant current or historical event and create a presentation.
- Students will conduct a survey, gather the data, and present the data in chart form.
- Students will use a digital tool to create an actual sketch of a household item.
- Students will use a digital tool to create a brochure about a famous person from history.



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Suggested Learning Activities:

- **All About Me Presentation:** Review basic skills using presentation software by working as a class to create a presentation on the school. Be sure to show students how to insert graphics, add animation, and review the slide formats. Have students work individually or in a small group to create a presentation on their hero or a current event. Be sure to show students how to insert graphics, add animation, and review the slide formats. Have students work individually or in a small group to create a presentation on their hero or a current event.
- **School Survey Project:** Students should first watch the video to review how to use spreadsheets.
<http://activities.macmillanmh.com/Techknowledge/data/shell/global/files/swf/tk.php?level=03&unit=07&lesson=67>
Students will then create different questions for their surveys. Students will go around and interview their fellow classmates to collect data. The data will then be put into Excel or Google Forms to create graphs and charts. The graphs and charts will be displayed around the school.
- **Everyday Product Sketch:** Have students work in small groups to create an accurate representation of a household item they use. Students should keep a detailed log of actual measurements and sizes. Students will then use the following digital tool to draw a 3D representation of the item. Students should label all parts of the product. <http://www.sketchup.com/>
- **Online Brochure:** In collaboration with the Social Studies teacher, students will create a brochure about the life of one of the important people they have been studying. Students will be reminded about Unit 1 and our Internet search tips and rules. Students will then utilize Microsoft Publisher or Google Docs to create a brochure. Students will include text, graphics, bullets, Word Art, and ClipArt.



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Tier 3 Learners: Video or written tutorials, work with a partner, chunk information into smaller parts, provide written notes and/or resources for the student to utilize, provide graphic organizers and a list of resources, allow extra time to complete assignments.



Curriculum Development Resources:

http://activities.macmillanmh.com/Techknowledge/data/_shell/_global/files/_swf/tk.php?level=03&unit=07&lesson=67

<http://www.freetech4teachers.com/2013/06/18-google-earth-maps-lessons-for-k-12.html#.VbQsAPIViko>

<http://www.sketchup.com/>



Notes/Comments: Many of the student projects can be graded with rubrics. The following are links to online rubric creators:

<http://rubistar.4teachers.org/index.php>

<http://elearningindustry.com/the-5-best-free-rubric-making-tools-for-teachers>

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Unit 4 Title: Problem Solving With Digital Tools

Unit Summary: This is the cumulative unit in grade 4 technology. The students will utilize all the previous skills they learned to complete various projects. Students will communicate with other classrooms via Skype to discuss issues and solve problems. Students will break down the parts of different products as well as design their own prior products from scratch. Students will be introduced to computer programming and begin to code.

Interdisciplinary Connections/Content Area Integrations Including Technology: Critical Thinking, Problem Solving, English Language Arts, Communications Skills, Health, Science, Social Studies, Mathematics

NJCCCS Number	NJCCCS Content
8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate	C. Communication and Collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. <ul style="list-style-type: none"> ● 8.1.5.C.1 Engage in online discussions with learners of other cultures to investigate a worldwide issue from multiple perspectives and sources, evaluate findings, and present possible solutions, using digital tools and online resources for all steps.

SHORE REGIONAL HIGH SCHOOL DISTRICT

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<p>and to create and communicate knowledge.</p>	<p>F: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.</p> <ul style="list-style-type: none"> ● 8.1.5.F.1 Apply digital tools to collect, organize, and analyze data that support a scientific finding.
<p>8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking, and the designed world as they relate to the individual, global society, and the environment.</p>	<p>A. The Nature of Technology: Creativity and Innovation Technology systems impact every aspect of the world in which we live.</p> <ul style="list-style-type: none"> ● 8.2.5.A.1 Compare and contrast how products made in nature differ from products that are human made in how they are produced and used. ● 8.2.5.A.2 Investigate and present factors that influence the development and function of a product and a system. ● 8.2.5.A.3 Investigate and present factors that influence the development and function of products and systems, e.g., resources, criteria, and constraints. ● 8.2.5.A.4 Compare and contrast how technologies have changed over time due to human needs and economic, political, and/or cultural influences. <p>C. Design: The design process is a systematic approach to solving problems.</p> <ul style="list-style-type: none"> ● 8.2.5.C.1 Collaborate with peers to illustrate components of a designed system. ● 8.2.5.C.2 Explain how specifications and limitations can be used to direct a product's development. ● 8.2.5.C.3 Research how design modifications have led to new products.

SHORE REGIONAL HIGH SCHOOL DISTRICT

A Regional Collaborative of the Communities Served by the Monmouth Beach, Oceanport, Shore Regional, and West Long Branch School Districts

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- 8.2.5.C.4 Collaborate and brainstorm with peers to solve a problem evaluating all solutions to provide the best results with supporting sketches or models.

E. Computational Thinking: Programming: Computational thinking builds and enhances problem solving, allowing students to move beyond using knowledge to creating knowledge.

- 8.2.5.E.1 Identify how computer programming impacts our everyday lives.
- 8.2.5.E.2 Demonstrate an understanding of how a computer takes input of data, processes, and stores the data through a series of commands, and outputs information.

Summative Assessments: May include but not limited to: Prezi, Google Documents, Google Slides, Google Spreadsheet, Google Forms



Formative Assessments: May include but is not limited to: Teacher Observation, Oral Questioning, Class Discussion, Homework, Quizzes, Exit Tickets, Graphic Organizers, Independent and Cooperative Activities/Assignments/Projects, Tests

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Enduring Understandings:

- The design process is fundamental to technology and engineering.
- Coding enables us to create computer software, apps, and websites.
- Technology is constantly changing and requires continuous learning of new skills.
- All technological activities use resources that include tools/machines, materials, information, energy, capital, time, and people.



Essential Questions:

- Why is the evaluation and appropriate use of accurate information more important than ever in the technological age?
- Can a system continue to operate with a missing or malfunctioning component?
- What is coding, and what is it used for?

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- What are the benefits and limitations of using technology?



Instructional Outcomes:

- Students will use various different digital tools to solve problems.
- Students will discuss current issues with other students via online chatting (Skype).
- Students will collaborate with peers to design and advertise a product using digital tools.
- Students will understand the purpose of coding and be introduced to how to code.
- Students will understand the design process is fundamental to technology and engineering.



Suggested Learning Activities:

- **Skype:** Using <https://education.skype.com/>, students will connect with other classrooms. This will be guided by the teacher. Once relationships have been established with other classrooms, the classes will communicate via Skype to discuss real world problems. Students will collaborate via Google

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Docs to solve a problem both schools have in common.

- **Broken Tool Project:** Present students with a broken tool such as a broken phone, computer, camera, etc. Allow the students to work together in groups to troubleshoot and fix the tool. Each group should record their work in a written or video journal and present to the class once they have fixed the tool.
- **School Issue Presentation:** Have students work in groups to perform research on school lunches and snacks. They can look into the prices, the menu, health factors, etc. The students can interview teachers, students, lunch room employees, and parents about the issue they chose and create a digital story to present their findings and suggest possible solutions to the issue. Students can use Animoto, iMovie, MovieMaker, or another program to display their findings.
- **Product Design:** To begin this project, students will research a product and create a brief report on how it was developed and how successful or unsuccessful it was. Students will use this as a basis for creating their own product. Have students visit [technologystudent.com](http://www.technologystudent.com) and research product design. Students will work in groups to develop their own product. After brainstorming, they will complete the worksheet found at: http://www.technologystudent.com/PDF3/prod_dev1.pdf. Students will use an appropriate digital tool (Prezi, Animoto, Glogster, etc.) to present their new product to the class.
- **Product Advertisement:** Students will finalize their product design project by creating and filming (or have teacher film) a short advertisement for their product.

SHORE REGIONAL HIGH SCHOOL DISTRICT

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- **Coding Using Scratch Program:** Students will be introduced to basic coding through <https://scratch.mit.edu/>. This is a good transition for the end of the school year as students will be exposed to this in more detail in middle school.



Suggested Differentiation:

Tier 1 Learners: Work individually, allow student choice to experiment with various resources.

Tier 2 Learners: Work with a partner, chunk information into smaller parts, provide written notes and/or resources for the student to utilize, student choice from a limited amount of resources.

Tier 3 Learners: Video or written tutorials, work with a partner, chunk information into smaller parts, provide written notes and/or resources for the student to utilize, provide graphic organizers and a list of resources, allow extra time to complete assignments.



Curriculum Development Resources:

<http://activities.macmillanmh.com/Techknowledge/data/shell/global/files/swf/tk.php?level=03&unit=07&lesson=67>

<https://education.skype.com/>

<https://scratch.mit.edu/>

http://www.technologystudent.com/PDF3/prod_dev1.pdf

<http://inventors.about.com/od/astartinventions/a/FamousInvention.htm>



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Notes/Comments: Many of the student projects can be graded with rubrics. The following are links to online rubric creators:

<http://rubistar.4teachers.org/index.php>

<http://elearningindustry.com/the-5-best-free-rubric-making-tools-for-teachers>

<http://www.rcampus.com/index.cfm>

<http://www.edudemic.com/online-rubric-makers/>